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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/522,608	03/10/2000	Yoshiaki Nozawa	WN-2155	4322

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1701 Clarendon Boulevard
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EXAMINER

VOLPER, THOMAS E

ART UNIT	PAPER NUMBER
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2697

DATE MAILED: 03/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/522,608

Applicant(s)

NOZAWA, YOSHIAKI

Examiner

Thomas Volper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed July 24, 2002 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because it provides no translation for Japanese Patents 6-90236 and 9-8838, or the publication "1994 Electronic Information Communication Association; Spring Conference B-765 (March 10, 1994), p. 3-260). It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

Specification

3. The abstract of the disclosure is objected to because it contains two paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. in view of Duault et al. and Jones et al.

- Regarding claim 1, Zhang discloses a statistical multiplexer (808), which comprises the multiplex gateway device of the present invention, that receives compressed video input streams from several sources and combines these input streams into a single bit stream as its output on channel (810) (col. 14, line 57 – col. 15, line 3; see also Fig. 8). Zhang also discloses, in Fig. 11, an integrated bit rate conversion device and ATM cell converter (1100) which is coupled to an ATM network (1106) (col. 17, lines 56-62). Furthermore, a rate conversion scheme is used to accommodate the differences in bit rate between the MPEG-2 transport stream and the available connection capacity on the ATM network when a constant bit rate (CBR) connection is to be established (col. 18, lines 21-34). Zhang does not expressly disclose that the statistical multiplexer connects to an ATM network, nor does Zhang disclose that there are two statistical multiplexers, each connecting a different local area ATM network to a public ATM network. Duault et al. discloses an architecture in which two customer premises ATM networks, each with a number of ATM endpoints, connect to a public ATM network (Fig. 1). As seen in Fig. 1, two private ATM switches provide the respective connections for each of the

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customer premises ATM networks. Jones discloses that a statistical multiplexer (116, Fig. 1) supports coalescing data signals from multiple subscribers for delivery of a collective packetized signal to the transport network. The reason for doing so being that consolidating access to multiple service types over one connection results in economic savings to the consumer and the carrier (col. 6, line 61 – col. 7, line 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the statistical multiplexer of Zhang in place of the private ATM switches in the invention of Duault to statistically multiplex the outputs of the ATM endpoints in the customer premises networks onto the public ATM network. One would have been motivated to do so for economical benefits to both consumers, located at the customer premises networks, and to the carrier providing access to the public ATM network.

6. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. in view of Duault et al. and Jones et al. as applied to claim 1 above, and further in view of Rao.

- Regarding claim 2, the teaching provided by Zhang et al. in view of Duault et al. and Jones et al. meets all of the limitations of claim 2, except that the statistical multiplexers output a piece-wise constant bit rate transmission. Rao discloses a statistical multiplexing system that dynamically adjusts the data compression rate for each input variable rate application stream over an interval of time that is referred to as a window in order to maximize the quality of the encoded data streams (col. 6, lines 40-48). More specifically, compression rates are used to build a table for a particular window, and a controller (310) selects packets from the encoders (302-1 to 302-L) to transmit on communication channel (330). A new table is generated during a

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transmission window, and at the end of a window, the statistical multiplexer switches to the rates of the new table (col. 6, line 65 – col. 7, line 13). This process effectively produces an output that comprises a piece-wise constant bit rate, as specified in claim 2. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use this multiplexing process in the statistical multiplexer of the aforementioned teaching because it maximizes the quality of the input streams, and assures that the channel bandwidth is not exceeded.

- Regarding claim 3, Rao states that system is also useful for a demultiplexing of received streams. In particular, the packet schedule table for a window contains information about which application, referring to a certain stream, is allocated each packet in that time interval. The demultiplexer selects the packets in the stream of incoming data that are of interest to the decoding system (col. 9, lines 9-21).

7. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. in view of Duault et al., Jones et al. and Rao as applied to claims 2 and 3 above, and further in view of Fichou et al.

- Regarding claim 4, the aforementioned teaching provides all the limitations of claim 4, except that it fails to disclose that statistic information for performing the multiplexing includes mean rate and a peak cell rate for the transmission ATM signals. Fichou discloses that peak cell rate (PCR) in view of cell delay variation tolerance (CDVT) due to multiplexing in a customer premises network (CPN) are sufficient parameters to describe CBR connections. However, additional parameters such as sustainable cell rate (SCR), which defines a mean cell

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rate, are necessary to describe variable bit rate (VBR) connections (col. 5, line 46 – col. 6, line 4). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the parameters, PCR and SCR, for providing a description of the input connections to the statistical multiplexer provided in the aforementioned teaching. One of ordinary skill in the art would have been motivated to do this in order to provide support to both CBR and VBR connections as inputs from either of the CPN's to be multiplexed onto the public ATM network.

- Regarding claim 5, Rao discloses that synchronization between the statistical multiplexer and associated application streams is maintained to ensure the sum of all the encoder rates, the total rate, always equals the communication channel capacity (col. 9, lines 46-53). This implies that the multiplexer performs a rate addition, as described in claim 5, to obtain the total rate. The present application provides means for performing a cell multiplex control. Rao discloses a controller (310) that analyzes the collected data and adjusts the compression rate for each variable rate encoder (302-i) to maximize the quality for all encoders (col. 6, lines 65-67). The limitation for calculating a piece-wise constant bit rate has been provided by the system taught in regard to claim 2.

- Regarding claim 6, see aforementioned rejection of claim 3 concerning demultiplexing.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Linzer et al. (US 6,038,256) Statistical multiplexed video encoding using pre-

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encoding a priori and a posteriori statistics

- Lee (US 6,198,752) ATM video telephone terminal interworking with ISDN
- Beshai et al. (US 5,881,049) Admission control in an ATM switching node
- Huang et al. (US 6,052,384) Using a receiver model to multiplex variable-rate bit

streams having timing constraints

- Takase et al. (US 6,034,954) Multiplexing apparatus for transit of signals between service provided by low-speed transmission path and ATM service provided by high-speed transmission path

- Eakins et al. (US 5,946,323) Asynchronous transfer mode integrated access service
- Gardner et al. (US 6,327,275) Remultiplexing variable rate bitstreams using a delay buffer and rate estimation

- Wallmeier (US 5,526,345) Method for statistical multiplexing

9. Any inquiry concerning this communication, or earlier communications from the examiner should be directed to Thomas Volper whose telephone number is 703-305-8405 and fax number is 703-746-9467. The examiner can normally be reached between 9:00am and 6:30pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo, can be reached at 703-305-4798. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

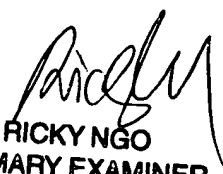
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tev

February 14, 2003


RICKY NGO
PRIMARY EXAMINER